[0021] FIG. **9** is a flowchart of a process for detecting and reacting to an intruding viewer of an electronic media display device, shown according to an exemplary embodiment.

[0022] FIG. **10** is a flowchart of a process for detecting and reacting to an intruding viewer of an electronic media display device, shown according to an alternative embodiment.

[0023] FIG. **11** is a flowchart of a general process for detecting and reacting to an intruding viewer of an electronic media display device, shown according to an exemplary embodiment.

[0024] FIG. **12** is a flowchart of a process for performing analysis of intruding viewers of an electronic media display device, shown according to an exemplary embodiment.

[0025] FIG. **13** is a schematic diagram of an electronic media display device and a camera, shown according to an alternative embodiment.

[0026] FIG. **14** is a flowchart of a general process for detecting and reacting to an intruding camera, shown according to an exemplary embodiment.

[0027] FIG. **15** is a flowchart of a process for detecting and reacting to an intruding camera, shown according to an exemplary embodiment.

DETAILED DESCRIPTION

[0028] Before turning to the figures, which illustrate the exemplary embodiments in detail, it should be understood that the application is not limited to the details or methodology set forth in the description or illustrated in the figures. It should also be understood that the terminology is for the purpose of description only and should not be regarded as limiting.

[0029] Referring generally to the Figures, systems and methods for detecting intruding viewers of a display and editing content accordingly are shown and described. A person may be operating an electronic media display device (e.g. a cellular phone, a tablet computer, a laptop computer, an eBook reading device, an ATM machine, a music player, a video player, a medical display, or any other device with an electronic display that is displaying content). The electronic media display device may be a fixed device or a mobile device. The person may be viewing sensitive content (e.g. private photographs, private videos, financial records, medical records, or any other content that the person may not want other people to view). A collateral viewer may be behind the person, in a position to view the content, without the knowledge or permission of the person. In another situation the collateral viewer may be holding a still or video camera, and may be using the camera to capture the screen of the electronic media display device. In another situation, a camera may be mounted inconspicuously on an building, or on signage, or a vehicle, etc. Utilizing a sensor (e.g. a camera attached to the device, radar sensor, micropower impulse radar (MIR), light detection and ranging technology, microphone, ultrasonic sensor, infrared sensor, near-infrared (NIR) sensor, or any other sensor that is capable of measuring the range and/or position of objects) the intruder or camera may be detected, and action may be taken to prevent the content from being resolved.

[0030] The intruder may be detected by determining a visibility envelope of the electronic media display device, and then performing analysis to determine an intruder's presence and location within the visibility envelope. Use of a visibility envelope can be advantageous in order to distinguish intruders who are capable of viewing and recognizing the contents of the display from ones who are capable of seeing the display but not of actually recognizing content displayed on it. By making this distinction, the display can take protective action (e.g., editing or modifying the display contents) only when necessary to prevent content being recognized, and not for the case of intruders who are not within the visibility envelope of the display and do not pose a significant threat to the privacy of the displayed content. This reduction in the use of protective action can reduce the inconvenience to the user and disruption of the user's viewing activities that universal protective actions would entail. The intruder's presence may be based in part on his distance from the electronic media display device. The visibility envelope may be generated by a processing circuit, which accepts information from a sensor. The information may be of the electronic media display device's surroundings. The processing circuit may use the information to determine the presence of an intruder within the visibility envelope based on the distance and viewing angle of the intruder. The processing circuit may perform an analysis of the distance and viewing angle of the intruder and determine whether action needs to be taken to edit or change the content that the electronic media display device is displaying. According to an alternative embodiment, in determining the presence of the intruder, the processing circuit may also perform red eye detection analysis, resolution analysis, and display brightness analysis.

[0031] The camera may be detected by performing analysis to determine a camera's presence and location within the area around the electronic media display device. Because an intruding camera may be able to detect the screen contents at distances and angles greater than that of human eyesight (e.g., with a zooming lens, a telephoto lens, etc.), the use of a visibility envelope as described above may not always be desirable. In some embodiments, the visibility envelope features may be enable and disabled as desired by a user, or as necessary for different types of unauthorized viewer detection (e.g., human intruders, intruding cameras and devices, etc.). Ranges and angles may still be specified to limit an area in which protective action is taken, and thereby reduce the inconvenience to the user and reduce disruption of the user's viewing activities. The sensor may provide information to the processing circuit corresponding to the electronic media display device's surroundings. The processing circuit may use the information to determine the presence of an intruding camera. The processing circuit may perform an analysis of the distance and viewing angle of the intruder and determine whether action needs to be taken to edit or change the content that the electronic media display device is displaying. The processing circuit may also be configured to take action whenever an intruding camera is detected, regardless of distance or viewing angle.

[0032] The system may be enabled or disabled by a user as the user desires. The threshold of when and what action should be taken may be specified by a preference file or by default values. The actions may include editing or changing of the content (e.g. turning off the display, switching the content to another content, degrading the visibility of the content, warning the user with an alert, or any other editing of the content).

[0033] For purposes of this disclosure, the term "coupled" means the joining of two members directly or indirectly to one another. Such joining may be stationary in nature or moveable in nature and such joining may allow for the flow of electricity, electrical signals, or other types of signals or com-